

FIG. 1

ROOT DIRECTORY 1450

SUB DIRECTORY 1451

REWRITABLE TITLE SET RW_VTS 1452
(DVD_RTR DIRECTORY)

RTR=REAL TIME RECORDING

DATA FILES 1453

CONTROL INFORMATION 1011
=RW_VIDEO_CONTROL.IFO (RTR.IFO)

BACKUP OF CONTROL INFO.
=RW_VIDEO_CONTROL.BUP

AV FILE 1401 (RTR DATA)
=RW_OBJECT.OB

VIDEO OBJECT (RTR_MOV.VRO) 1012

PICTURE OBJECT (RTR_ST0.VRO) 1013

AUDIO OBJECT (RTR_STA.VRO) 1014

THUMBNAIL OBJECT 1016

REWRITABLE ADDITIONAL INFO. 1454
=RW_ADD.DAT

SUB DIRECTORY 1451

VIDEO TITLE SET VIDEO_TS (OR VTS) 1455

AUDIO TITLE SET AUDIO_TS (OR ATS) 1456

SUB DIRECTORY FOR COMPUTER DATA STORAGE 1457

FIG.2

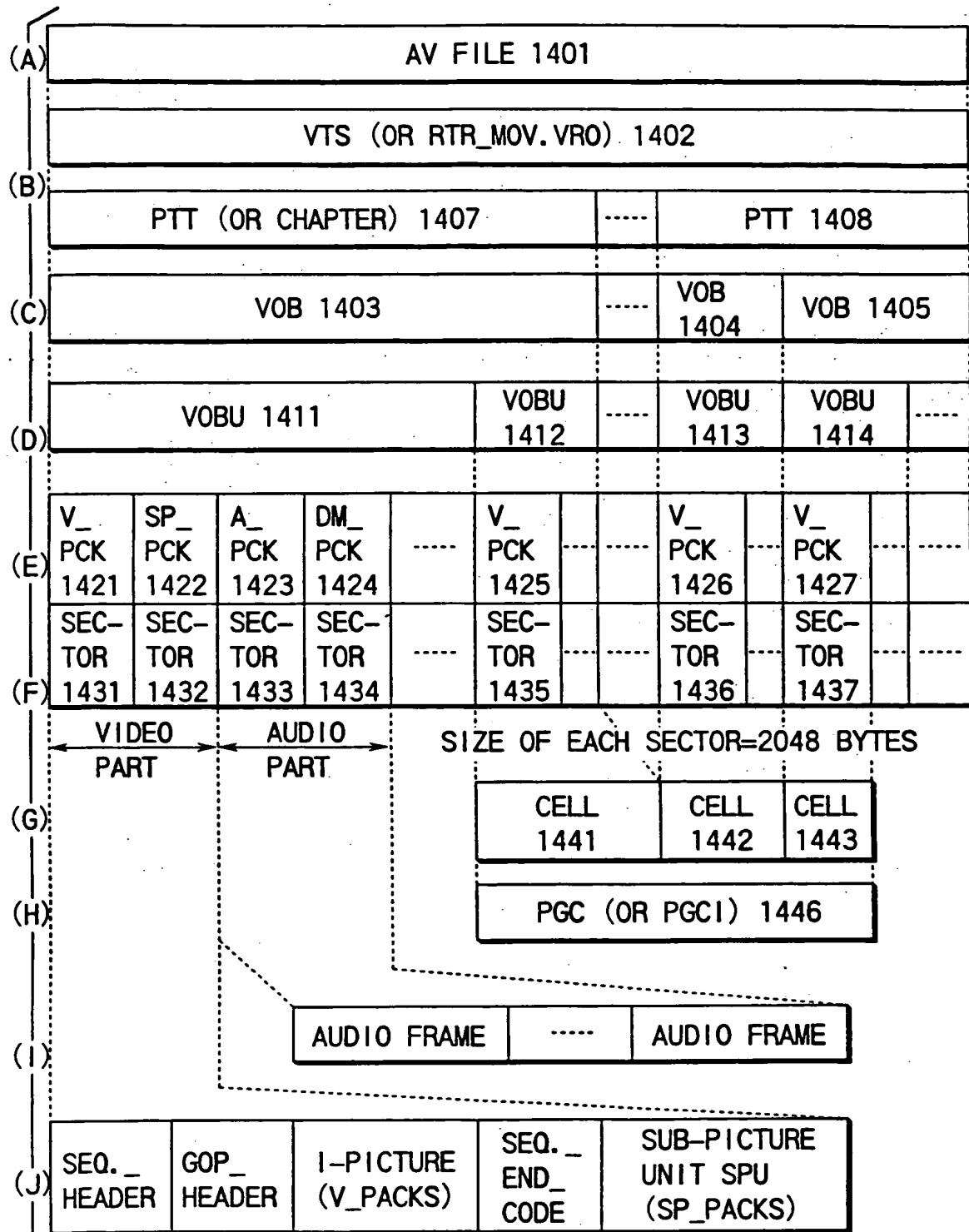


FIG. 3

AV FILE 1401						
V0B #3 (1) 1463	V0B #1 1461	V0B #3 (2) 1464	V0B #2 1462	UNRECORDED AREA 1460	V0B #3 (3) 1465	LSNg
EXTENT $\# \gamma$ 1473	EXTENT $\# \alpha$ 1471	EXTENT $\# \delta$ 1474	EXTENT $\# \beta$ 1472	EXTENT $\# \zeta$ 1470	EXTENT $\# \epsilon$ 1475	LSNg
						LSNf+1
						LSNf
						LSNe+1
						LSNe
						LSNd+1
						LSNd
						LSNc+1
						LSNc
						LSNb+2
						LSNb+1
						LSNb
						LSNa+2
						LSNa+1

→ SMALLER LOGICAL SECTOR NUMBER (LSN)
 ← INNER SIDE OF OPTICAL DISC 1001
 → OUTER SIDE OF OPTICAL DISC 1001 →

FIG. 4

CONTENTS OF
ALLOCATION
MAP TABLE
1105

DISTRIBUTION
INFORMATION OF
POSITIONS OF
UNRECORDED
AREA 1621

DISTRIBUTION
INFORMATION OF
POSITIONS OF
RECORDED DATA
AS TO VOB #1
1622

DISTRIBUTION
INFORMATION OF
POSITIONS OF
RECORDED DATA
AS TO VOB #2
1623

DISTRIBUTION
INFORMATION OF
POSITIONS OF
RECORDED DATA
AS TO VOB #3
1624

NUMBER OF EXTENTS IN
UNRECORDED AREA 1601

1

1ST ADR. (LSN) OF 1ST
EXTENT IN UNRECORDED
AREA 1606

e-a

SIZE (SECTORS) OF 1ST
EXTENT IN UNRECORDED
AREA 1614

f-e

NUMBER OF EXTENTS
IN VOB #1 1602

1

1ST ADR. (LSN) OF 1ST
EXTENT IN VOB #1 1607

b-a

SIZE (SECTORS) OF 1ST
EXTENT IN VOB #1 1615

c-b

NUMBER OF EXTENTS
IN VOB #2 1603

1

1ST ADR. (LSN) OF 1ST
EXTENT IN VOB #2 1608

d-a

SIZE (SECTORS) OF 1ST
EXTENT IN VOB #2 1616

e-d

NUMBER OF EXTENTS
IN VOB #3 1604

3

1ST ADR. (LSN) OF 1ST
EXTENT IN VOB #3 1609

1

SIZE (SECTORS) OF 1ST
EXTENT IN VOB #3 1617

b-a

1ST ADR. (LSN) OF 2ND
EXTENT IN VOB #3 1610

c-a

SIZE (SECTORS) OF 2ND
EXTENT IN VOB #3 1618

d-c

1ST ADR. (LSN) OF 3RD
EXTENT IN VOB #3 1611

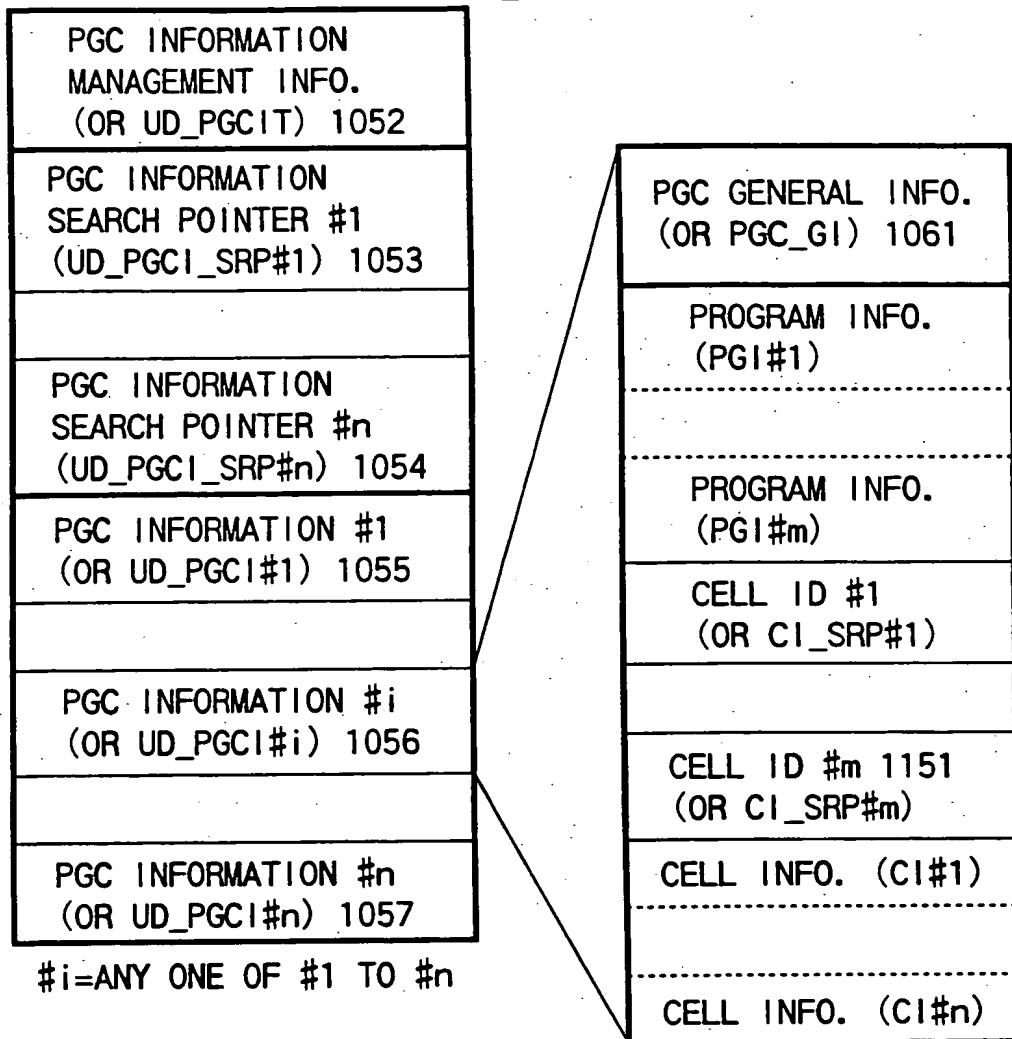
f-a

SIZE (SECTORS) OF 3RD
EXTENT IN VOB #3 1619

g-f

FIG. 5

PGC CONTROL INFO. (OR UD_PGCIT) 1103



- *1> PGC INFORMATION (OR UD_PGC1) CAN DEFINE A GROUP OF ONE OR MORE PROGRAMS;
- *2> EACH PROGRAM CAN BE FORMED OF ONE OR MORE CELLS;
- *3> EACH CELL CAN BE SPECIFIED BY CELL ID (OR CI_SRP);
- *4> EACH CELL ID (OR CI_SRP) CAN INDICATE POSITION (OR START ADDRESS) OF CELL INFORMATION (OR CI);
- *5> EACH CELL INFORMATION (OR CI) CAN DETERMINE START TIME AND END TIME OF PRESENTATION OF CELL

FIG. 6

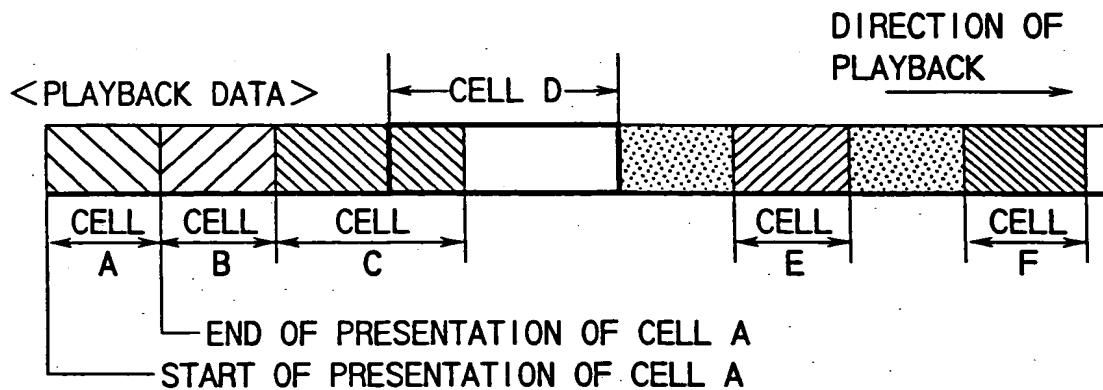


FIG. 7A

PGC INFORMATION (PGC1)

PGC#1 1081		PGC#2 1082		PGC#3 1083	
NUMBER OF CELLS=3		NUMBER OF CELLS=3		NUMBER OF CELLS=5	
#1	CELL A	#1	CELL D	#1	CELL E
#2	CELL B	#2	CELL E	#2	CELL A
#3	CELL C	#3	CELL F	#3	CELL D
—	—	—	—	#4	CELL B
—	—	—	—	#5	CELL E
CELL ID	CELL INFO.	CELL ID	CELL INFO.	CELL ID	CELL INFO.
CI_SRP #m=3	CI #n=3	CI_SRP #m=3	CI #n=3	CI_SRP #m = 5	CI #n=4

FIG. 7B

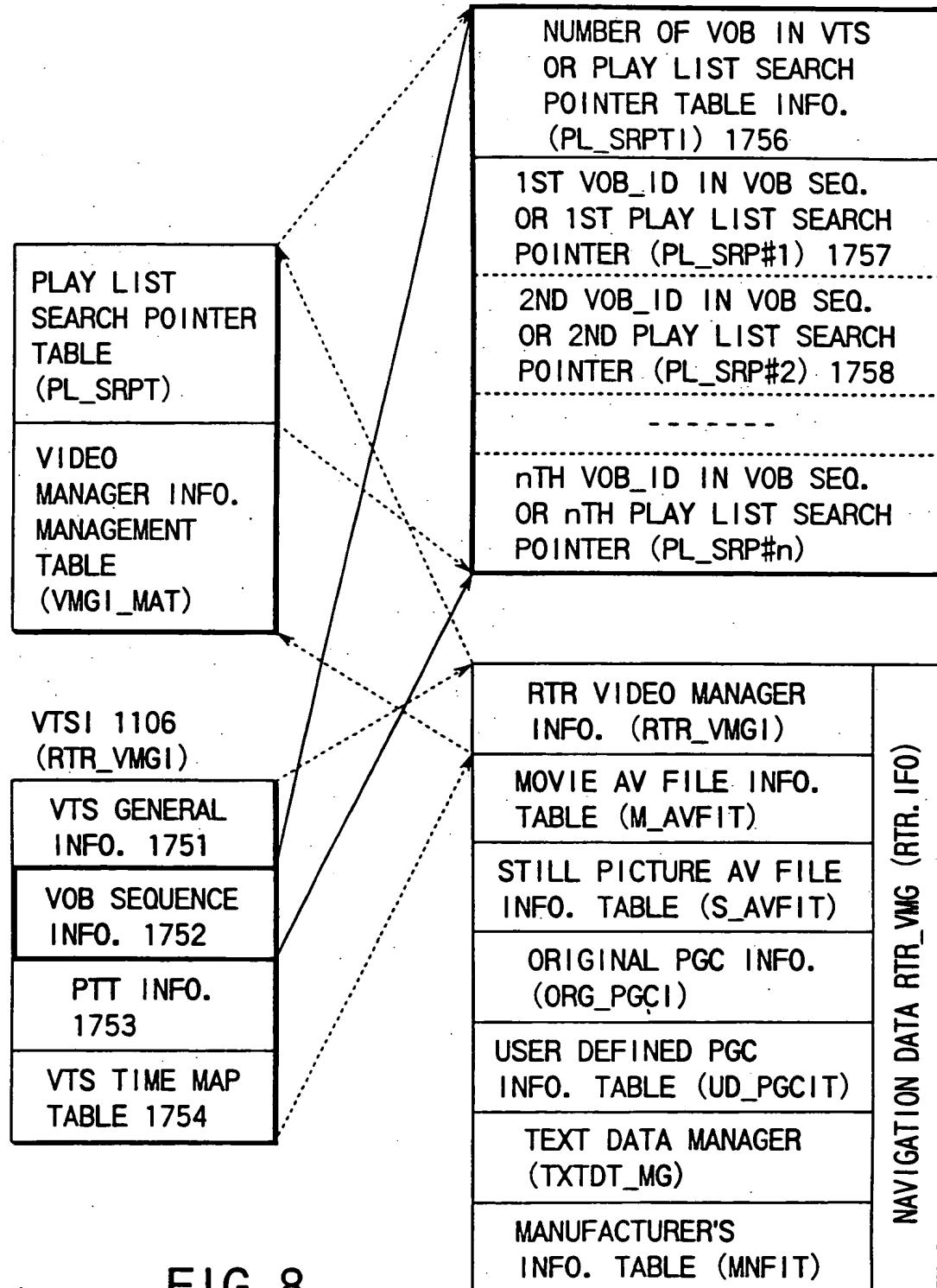


FIG. 9A AV FILE 1401

AV FILE 1401	
VTS (OR RTR_MOV. VRO) 1402	

FIG. 9B VTS (OR RTR_MOV. VRO) 1402

VTS (OR RTR_MOV. VRO) 1402	
VOB#1 1461	VOB#2 1462

FIG. 9C VTS (OR RTR_MOV. VRO) 1402

VOB#1 1471	EXTENT# α 1472	EXTENT# β 1473	EXTENT# γ 1474	EXTENT# δ 1474	EXTENT# ϵ 1475	EXTENT# ζ 1470
UNRECORDED AREA 1460						

FIG. 9D AV FILE 1401

AV FILE 1401	
VTS (OR RTR_MOV. VRO/RTR_STA. VRO) 1402	

FIG. 9E VTS (OR RTR_MOV. VRO/RTR_STA. VRO) 1402

M_VOB1#		S_VOG1#		S_VOG1#		S_VOG1#	
VOB#A 1771	VOB#B 1772	VOB#C 1773	VOB#D 1774	VOB#E 1775	VOB#F 1776	VOB#G 1777	VOB#H 1778
VIDEO OBJECTS 1012	AUDIO OBJECTS 1014	PICTURE OBJECTS 1013	AUDIO OBJECTS 1014	AUDIO OBJECTS 1014	PICTURE OBJECTS 1013	AUDIO OBJECTS 1014	PICTURE OBJECTS 1013
							THUMBNAIL OBJECTS 1016
							VOB#I 1779

FIG. 9F

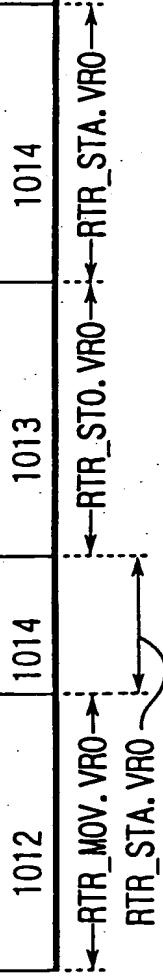


FIG. 10A VOB FOR PICTURE OBJECTS (OR STILL PICTURE VOB GROUP RELATING TO S_VOGI#) 1631

FIG. 10B V0BU (FOR ONE STILL PICTURE) 1641

V_PCK 1661	V_PCK 1662	V_PCK 1663	SP_PCK 1681	A_PCK 1691	A_PCK 1692
I-PICTURE 1706		DUMMY DATA	SP_STREAM	A_STREAM	A_STREAM

VIDEO PART ——————>
—————<—AUDIO PART

FIG. 10D VOB FOR PICTURE OBJECTS (OR STILL PICTURE VOB GROUP RELATING TO S_VOGI#) 1632

FIG. 10E V0BU(ONE STILL PICT.) 1642 V0BU 1643 V0BU 1644

V_PCK 1664	SP_PCK 1682	A_PCK 1693	V_PCK 1665	A_PCK 1694	V_PCK 1666	V_PCK 1667	A_PCK 1695
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FIG. 10F

FIG. 10G VOB FOR PICTURE OBJECTS (OR STILL PICTURE VOB GROUP RELATING TO S_VOGI#) 1633

FIG. 10H VOBU (ONE STILL PICTURE) 1645 VOBU 1646 VOBU 1647

V_PCK 1668	V_PCK 1669	V_PCK 1670	SP_PCK 1683	V_PCK 1671	V_PCK 1672	V_PCK 1673	V_PCK 1674	V_PCK 1674	V_PCK 1674
I-PICTURE 1707	DUMMY 1704	SP_STREAM	I-PICTURE 1708	DUMMY 1705	I-PICTURE 1709				VIDEO PART

FIG. 10
I-PICTURE 10/1704 STREAM I-PICTURE 10/08 1705

FIG. 10J VOB FOR PICTURE OBJECTS (OR STILL PICTURE VOB GROUP RELATING TO S_VOGI#) 1634

VOBU (ONE STILL PICTURE) 1648 VOBU 1649 VOBU 1650

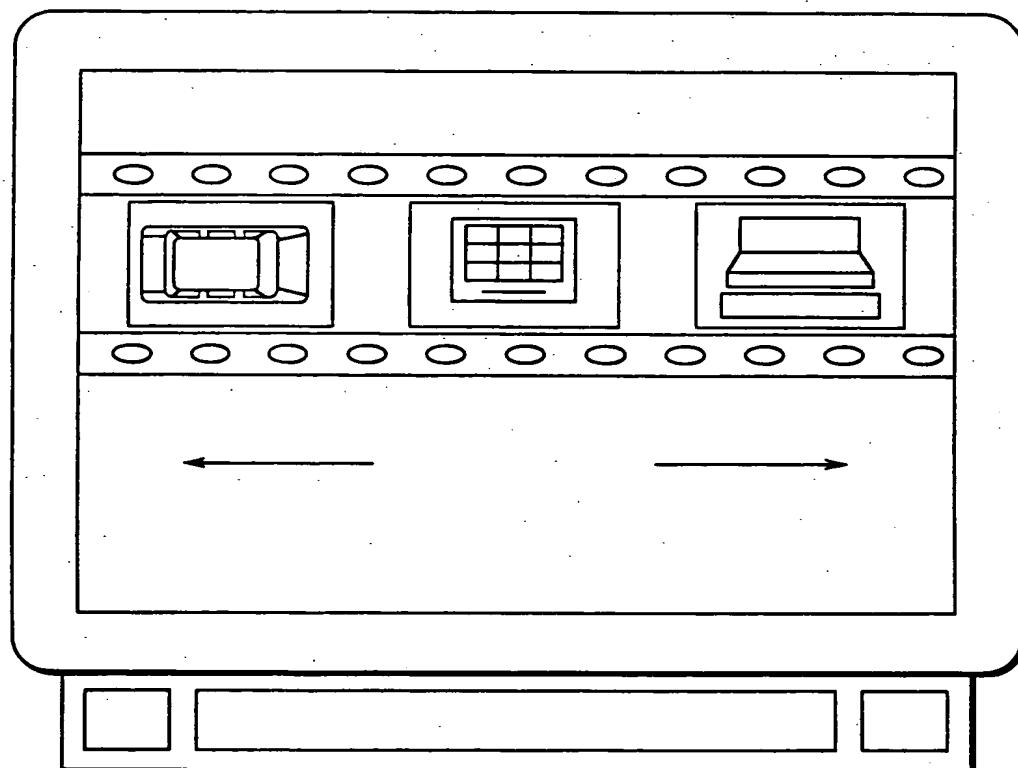


FIG. 11

STILL PICTURE AV FILE (S_AVFIT)	VOB INFO. FOR PICT. OBJECTS MANAGEMENT INFO. 1721 (OR S_AVFI_G1)	VOB GENERAL INFORMATION FOR PICTURE OBJECTS 1736 (OR STILL PICTURE VOB GROUP GENERAL INFO. S_VOG_G1)
STILL PICTURE AV FILE INFO. TABLE INFO. (S_AVFITI)	SEARCH POINTER OF VOB INFO. FOR PICT. OBJECTS #1 1726 (OR S_VOGI_SRP#1)	VOB ATTRIB. INFORMATION FOR PICTURE OBJECTS 1737
STILL PICT. VOB STREAM INFO. #1 (S_VOB_STI#1)	SEARCH POINTER OF VOB INFO. FOR PICT. OBJECTS #i 1727 (OR S_VOGI_SRP#i)	VOBU MAP FOR PICTURE OBJECTS 1738 (OR STILL PICTURE VOB ENTRES S_VOB_ENT#)
-----	-----	-----
STILL PICT. VOB STREAM INFO. #n (S_VOB_STI#n)	SEARCH POINTER OF VOB INFO. FOR PICT. OBJECTS #k 1728 (OR S_VOGI_SRP#k)	-----
STILL PICTURE AV FILE INFO. (S_AVFI)	VOB INFO. FOR PICT. OBJECTS #1 1731 (OR S_VOGI#1)	-----
STILL PICT. AD- DITIONAL AUDIO STREAM INFO. #1 (S_AA_STI#1)	VOB INFO. FOR PICT. OBJECTS #i 1732 (OR S_VOGI#i)	-----
-----	-----	-----
STILL PICT. AD- DITIONAL AUDIO STREAM INFO. #m (S_AA_STI#m)	VOB INFO. FOR PICT. OBJECTS #k 1733 (OR S_VOGI#k)	-----
STILL PICTURE ADDITIONAL AUDIO FILE INFO. (S_AAFI)	-----	-----

FIG. 12 #i=ANY ONE OF #1 TO #k

VOB ATTRIB. INFO. FOR PICT. OBJ. 1737	STILL PICT. ENTRY TYPE (S_VOB_ENT_TY)	DATA SIZE OF STILL PICTURE (OR VOB) INDICATED BY USED SECTORS 1806 (OR VIDEO PART SIZE V_PART_SZ/ AUDIO PART SIZE A_PART_SZ)
VOBU MAP FOR PICT. OBJ. 1738 (S_VOB_ENT#)	NUMBER OF STILL PICT. (OR NUMBER OF VOBUs) IN CORRESPONDING VOB 1801 (OR S_VOB_Ns)	DISPLAY TIME OF ONE STILL PICTURE 1807 REPRESENTED BY PLAYBACK TIME OF AUDIO PART (IF VOBU CONTAINS A_PCK) OR REPRESENTED BY DISPLAY TIME OF VIDEO PART (IF VOBU CONTAINS NO A_PCK)
VOB GENERAL INFO. 1736 OR S_VOG_GI	INFO. OF 1ST STILL PICT. IN CORRESPONDING VOB 1802	ADDRESS OF 1ST V_PCK IN VOB 1808 (OR S_VOG_SA)
	INFO. OF 2ND STILL PICT. IN CORRESPONDING VOB 1803	SIZE OF I-PICTURE IN VOBU (INDICATED BY TOTAL BYTES) 1809
	INFO. OF 3RD STILL PICT. IN CORRESPONDING VOB 1804	PRESENTATION START TIME S_PTm OF STILL PICTURE (V_PCK/SP_PCK) 1810
	-----	1ST SYSTEM CLOCK REFERENCE F_SCR OF STILL. PICTURE (V_PCK/SP_PCK) 1811
	PLAYBACK TIME OF AUDIO PART A_PB_TM	ADDRESS OF 1ST A_PCK IN VOBU 1812
		AUDIO S_PTm (PRESENTATION START TIME OF A_PCK) 1813
		AUDIO E_PTm (PRESENTATION END TIME OF A_PCK) 1814
		AUDIO F_SCR (SYSTEM CK REF. OF 1ST A_PCK IN VOBU) 1815
		AUDIO L_SCR (SYSTEM CK REF. OF LAST A_PCK IN VOBU) 1816

FIG. 13

VOB #A 1821					
VOBU 1825	VOBU 1826				
STILL PICT. NO. 1	STILL PICT. NO. 2				

VOB #A 1827					
STILL PICT.	STILL PICT.				
1831	AUDIO	STLPCT	AUDIO	STLPCT	AUDIO

V_PCK	A_PCK	V_PCK	SP_PK	A_PCK	V_PCK
1851	1861	1852	1848	1862	1853

LAST STILL PICT. IN CELL					
1ST STILL PICT. IN CELL	LAST STILL PICT. IN CELL				
V_PCK	SP_PK	A_PCK	V_PCK	V_PCK	A_PCK

1852	1848	1865	1853	1854	1866
A_PCK	V_PCK	A_PCK	V_PCK	V_PCK	A_PCK

STILL PICTURE NO. h+j-2					
VOBU 1828	VOBU 1829				

VOB #B 1822					
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FIG. 14A

FIG. 14B

FIG. 14C

FIG. 14D

FIG. 14E

FIG. 14F

FIG. 14G

CONTENTS (S_CI) OF CELL PLAYBACK INFO. (CI) FOR PICTURE OBJECTS 1870	EXAMPLE 1871 WITH RESPECT TO FIG.14	EXAMPLE 1872 WITH RESPECT TO FIG.14
CELL ID (CI_SRP) 1873	_____	_____
TYPE INFORMATION OF CELL (C_TY) 1880	_____	_____
ID INFORMATION OF VOB WITH V_PCK 1874	VOB #A	1821
STILL PICT. NUMBER 1875 IN VOB INCLUDING V_PCK OF 1ST STILL PICTURE IN CELL (S_S_VOB_ENTN)	2	1826
STILL PICT. NUMBER 1876 IN VOB INCLUDING V_PCK OF LAST STILL PICTURE IN CELL (E_S_VOB_ENTN)	h	1827
ID INFORMATION OF VOB WITH A_PCK 1877	VOB #B	1822
STILL PICT. NUMBER 1878 IN VOB INCLUDING A_PCK OF 1ST STILL PICTURE IN CELL	j	1828
PRESENTATION TIME 1879 OF EACH STILL PICTURE HAVING NO CORRESPONDING A_PCK	2 SECONDS (ONE LINE)	_____

FIG.15

CONTENTS OF CELL PLAYBACK INFO. (CI) FOR PTT
CELL ID (CI_SRP) 1883
TYPE INFO. OF CELL (C_TY) 1882
ID INFO. OF PTT WITH V_PCK 1884
STILL PICTURE NUMBER 1885 IN PTT OF VOB INCLUDING V_PCK OF 1ST STILL PICTURE IN CELL
STILL PICTURE NUMBER 1886 IN PTT OF VOB INCLUDING V_PCK OF LAST STILL PICTURE IN CELL
ID INFO. OF PTT WITH A_PCK 1887
STILL PICTURE NUMBER 1888 IN PTT OF VOB INCLUDING A_PCK OF 1ST STILL PICTURE IN CELL
PRESENTATION TIME 1889 OF EACH STILL PICT. HAVING NO CORRESPONDING A_PCK

FIG. 16

STILL PICTURE AV FILE INFO.
(S_AVFI) FOR PTT (CHAPTER)

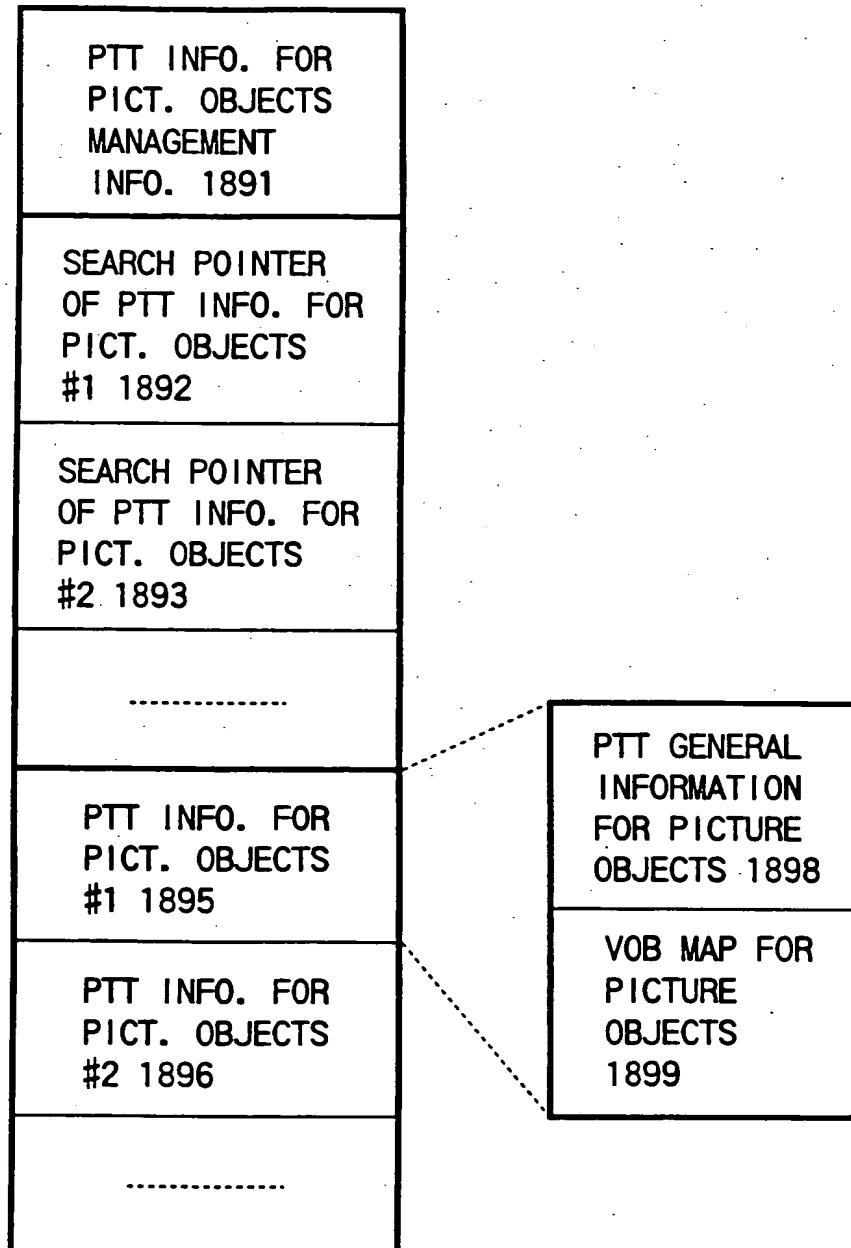


FIG. 17

VOB MAP FOR
PICT. OBJECTS
1899

NUMBER OF
STILL PICT.
(OR NUMBER
OF VOBs) IN
CORRESPONDING
PTT 1901
(OR S_VOB_Ns)

INFO. OF 1ST
STILL PICT. IN
CORRESPONDING
PTT 1902

INFO. OF 2ND
STILL PICT. IN
CORRESPONDING
PTT 1903

DATA SIZE OF STILL PICTURE
(OR VOB) INDICATED BY USED
SECTORS 1906

DISPLAY TIME OF ONE STILL
PICTURE 1907 REPRESENTED
BY PLAYBACK TIME OF AUDIO
PART (IF VOB CONTAINS
A_PCK) OR REPRESENTED BY
DISPLAY TIME OF VIDEO PART
(IF VOB CONTAINS NO A_PCK)

ADDRESS OF 1ST V_PCK
IN VOB 1908
(OR S_VOG_SA)

SIZE OF I-PICTURE IN VOB
(INDICATED BY TOTAL BYTES)
1909

PRESENTATION START TIME
S_PTM OF STILL PICTURE
(V_PCK/SP_PCK) 1910

1ST SYSTEM CLOCK REFERENCE
F_SCR OF STILL. PICTURE
(V_PCK/SP_PCK) 1911

ADDRESS OF 1ST A_PCK
IN VOB 1912

AUDIO S_PTM (PRESENTATION
START TIME OF A_PCK) 1913

AUDIO E_PTM (PRESENTATION
END TIME OF A_PCK) 1914

AUDIO F_SCR (SYSTEM CK REF.
OF 1ST A_PCK IN VOB) 1915

AUDIO L_SCR (SYSTEM CK REF.
OF LAST A_PCK IN VOB) 1916

FIG. 18

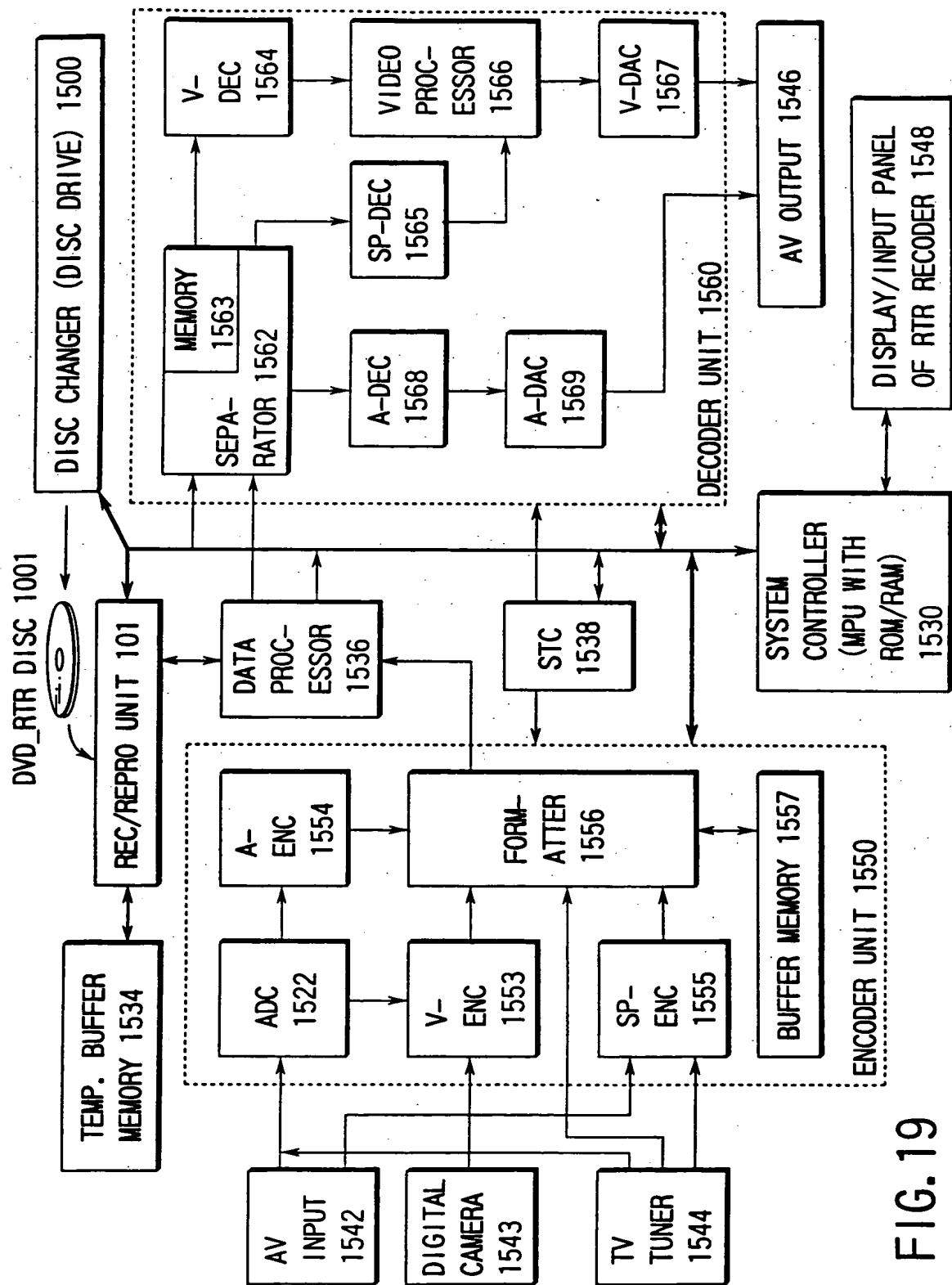


FIG. 19

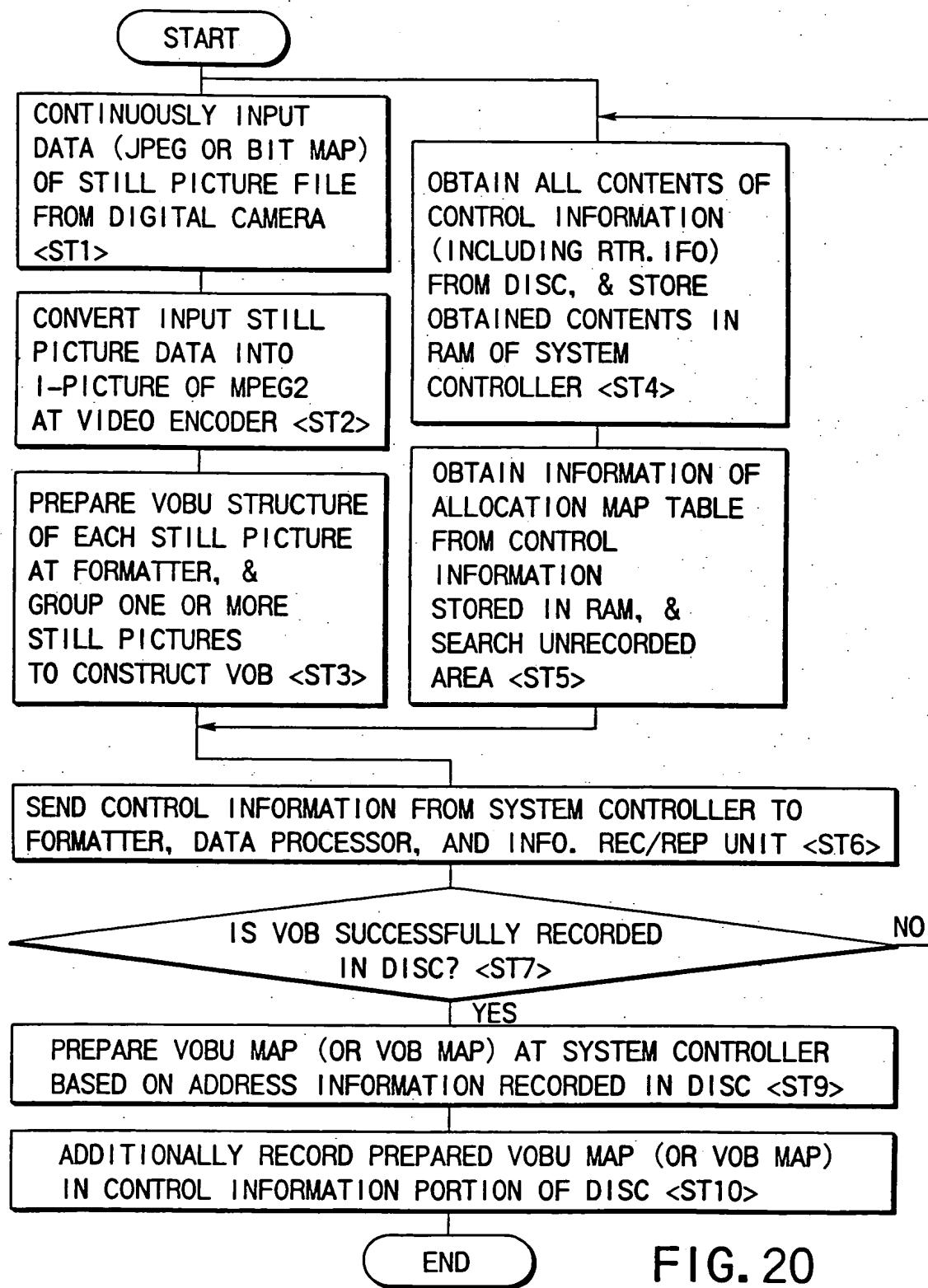


FIG. 20

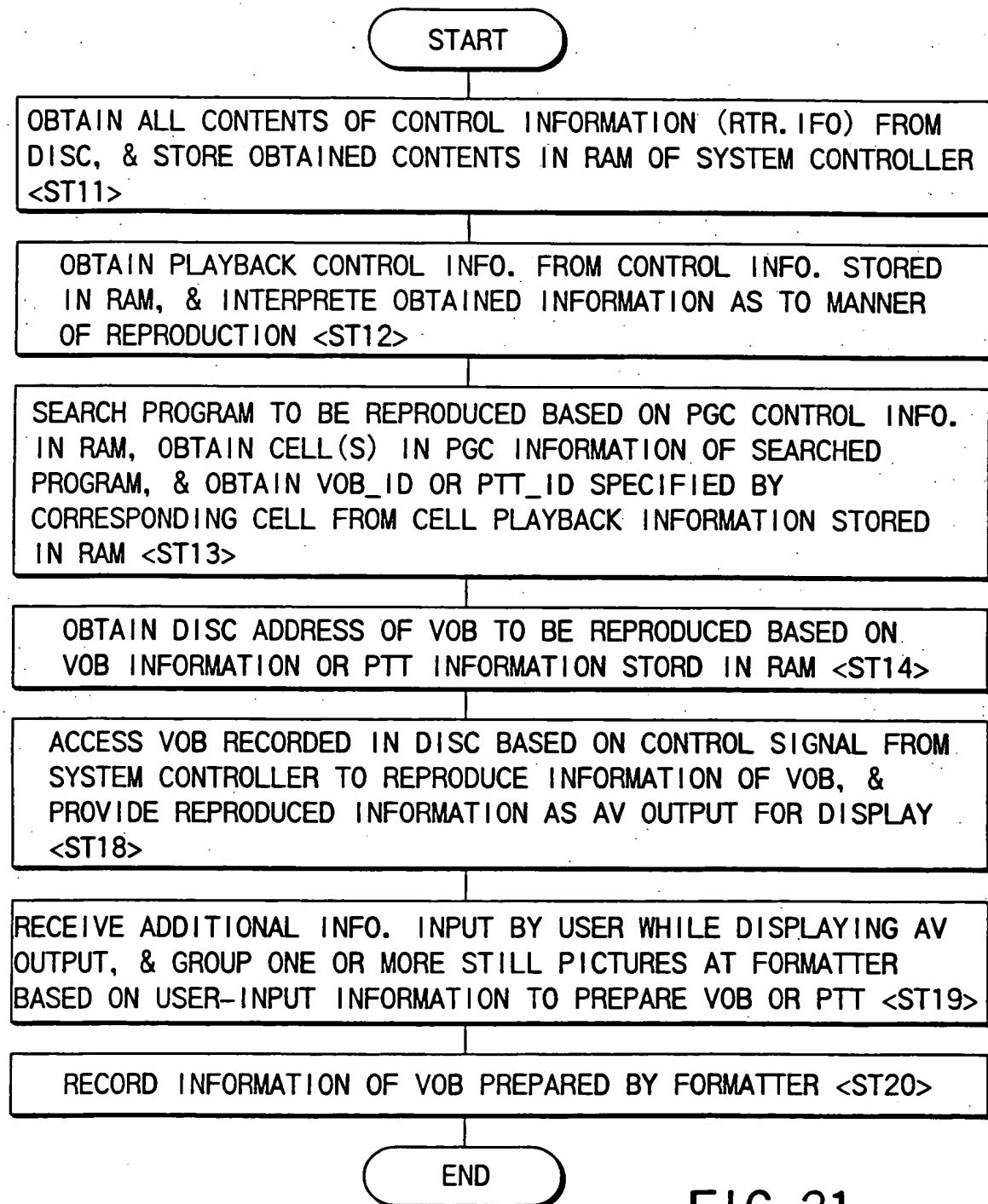


FIG. 21

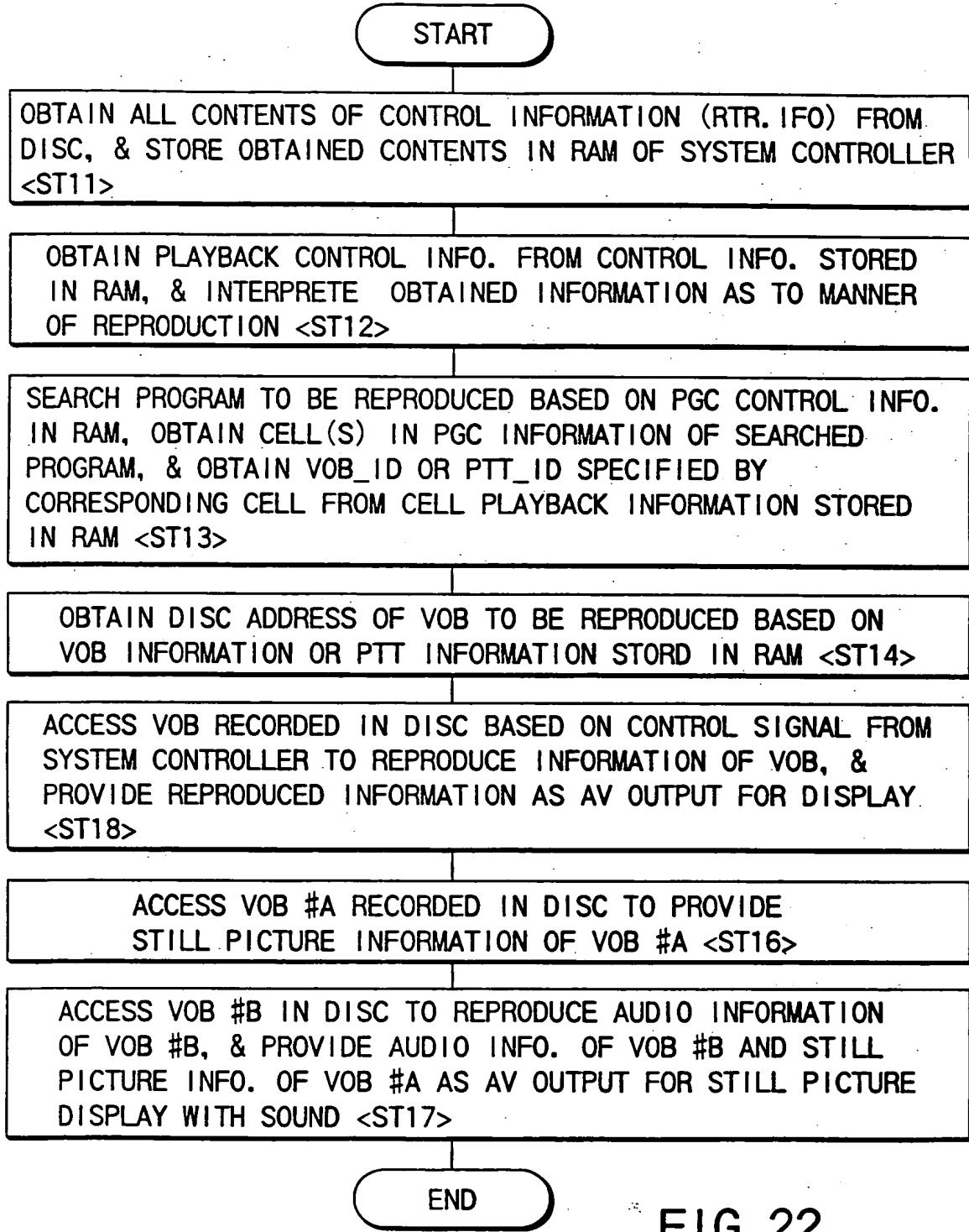


FIG. 22

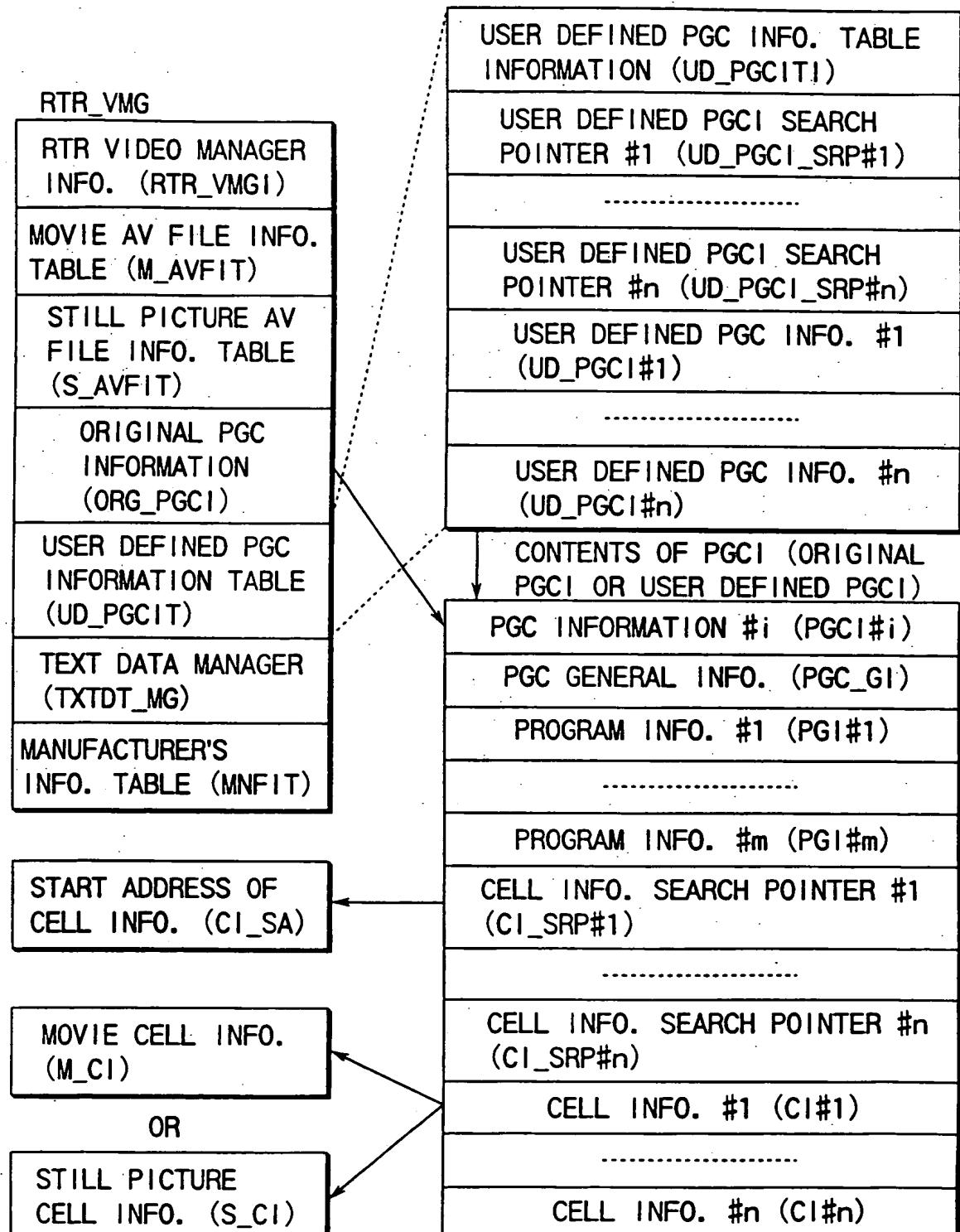


FIG. 23

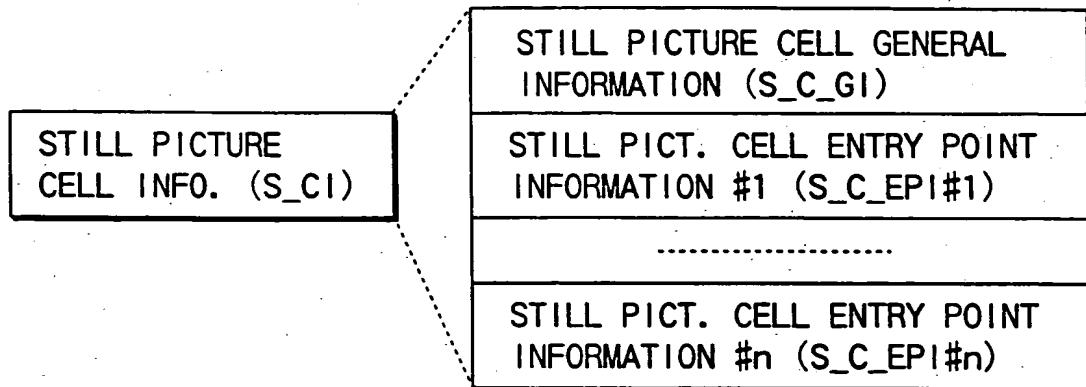


FIG. 24

CONTENTS OF S_C_GI

FIELD NAME	CONTENTS
RESERVED	RESERVED
C_TY	CELL TYPE
S_VOGI_SRPN	S_VOGI SEARCH POINTER NUMBER
C_EPI_Ns	NUMBER OF CELL ENTRY POINT INFO.
S_S_VOB_ENTN	START S_VOB_ENT NUMBER
E_S_VOB_ENTN	END S_VOB_ENT NUMBER

FIG. 25

CONTENTS OF S_C_EPI

FIELD NAME	CONTENTS
EP_TY	ENTRY POINT TYPE
S_VOB_ENTN	S_VOB_ENT NUMBER
PRM_TXTI	PRIMARY TEXT INFORMATION

FIG. 26

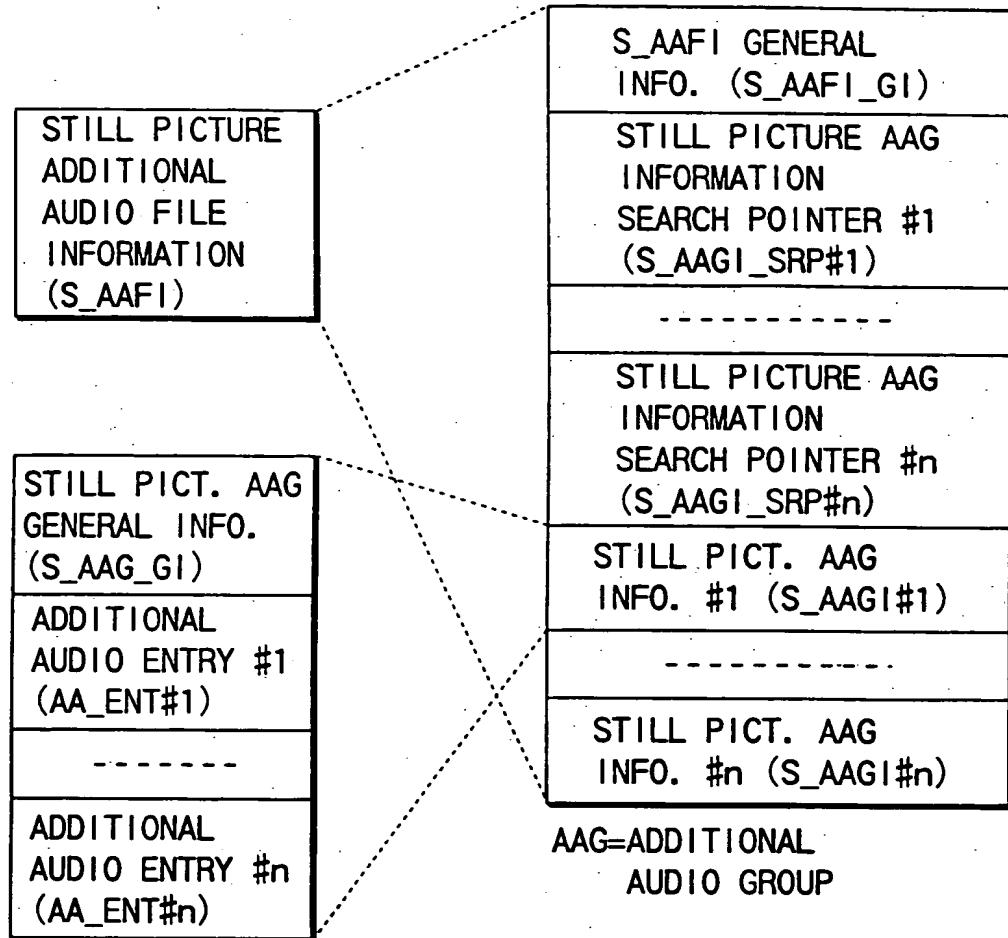


FIG. 27

CONTENTS OF S_AAG_GI

FIELD NAME	CONTENTS
AA_ENT_Ns	NUMBER OF AA_ENT
S_AA_STIN	STILL PICTURE ADDITIONAL AUDIO STREAM INFORMATION NUMBER
S_AAG_SA	START ADDRESS OF THIS AAG IN STILL PICTURE ADDITIONAL AUDIO FILE

FIG. 28

CONTENTS OF AA_ENT

FIELD NAME	CONTENTS
AA_TY	ADDITIONAL AUDIO TYPE
AA_SZ	SIZE OF ADDITIONAL AUDIO STREAM
AA_PB_TM	PLAYBACK TIME OF ADDITIONAL AUDIO STREAM (MEASURED BY VIDEO FIELDS)

FIG. 29

CONTENTS OF S_VOG_GI

FIELD NAME	CONTENTS
S_VOB_Ns	NUMBER OF S_VOBs
S_VOB_STIN	STILL PICTURE VOB STREAM INFORMATION NUMBER
FIRST_VOB_REC_TM	TIME WHEN THE FIRST VOB IN THIS VOB GROUP WAS RECORDED
LAST_VOB_REC_TM	TIME WHEN THE LAST VOB IN THIS VOB GROUP WAS RECORDED
S_VOG_SA	START ADDRESS OF THIS VOB GROUP IN STILL PICTURE AV FILE

FIG. 30

CONTENTS OF S_VOB_ENT (TYPE 1)

FIELD NAME	CONTENTS
S_VOB_ENT_TY	STILL PICTURE VOB ENTRY TYPE
V_PART_SZ	SIZE OF VIDEO PART

FIG. 31

CONTENTS OF S_VOB_ENT (TYPE 2)

FIELD NAME	CONTENTS
S_VOB_ENT_TY	STILL PICTURE VOB ENTRY TYPE
V_PART_SZ	SIZE OF VIDEO PART
A_PART_SZ	SIZE OF ORIGINAL AUDIO PART
A_PB_TM	PLAYBACK TIME OF AUDIO PART (DESCRIBED IN VIDEO FIELDS)

FIG. 32

CONTENTS OF S_VOB_ENT (TYPE 3)

FIELD NAME	CONTENTS
S_VOB_ENT_TY	STILL PICTURE VOB ENTRY TYPE
V_PART_SZ	SIZE OF VIDEO PART
S_AAGN	ADDITIONAL AUDIO GROUP NUMBER
AA_ENTN	AA_ENT NUMBER

FIG. 33

CONTENTS OF S_VOB_ENT (TYPE 4)

FIELD NAME	CONTENTS
S_VOB_ENT_TY	STILL PICTURE VOB ENTRY TYPE
V_PART_SZ	SIZE OF VIDEO PART
A_PART_SZ	SIZE OF ORIGINAL AUDIO PART
A_PB_TM	PLAYBACK TIME OF AUDIO PART
S_AAGN	ADDITIONAL AUDIO GROUP NUMBER
AA_ENTN	AA_ENT NUMBER

FIG. 34

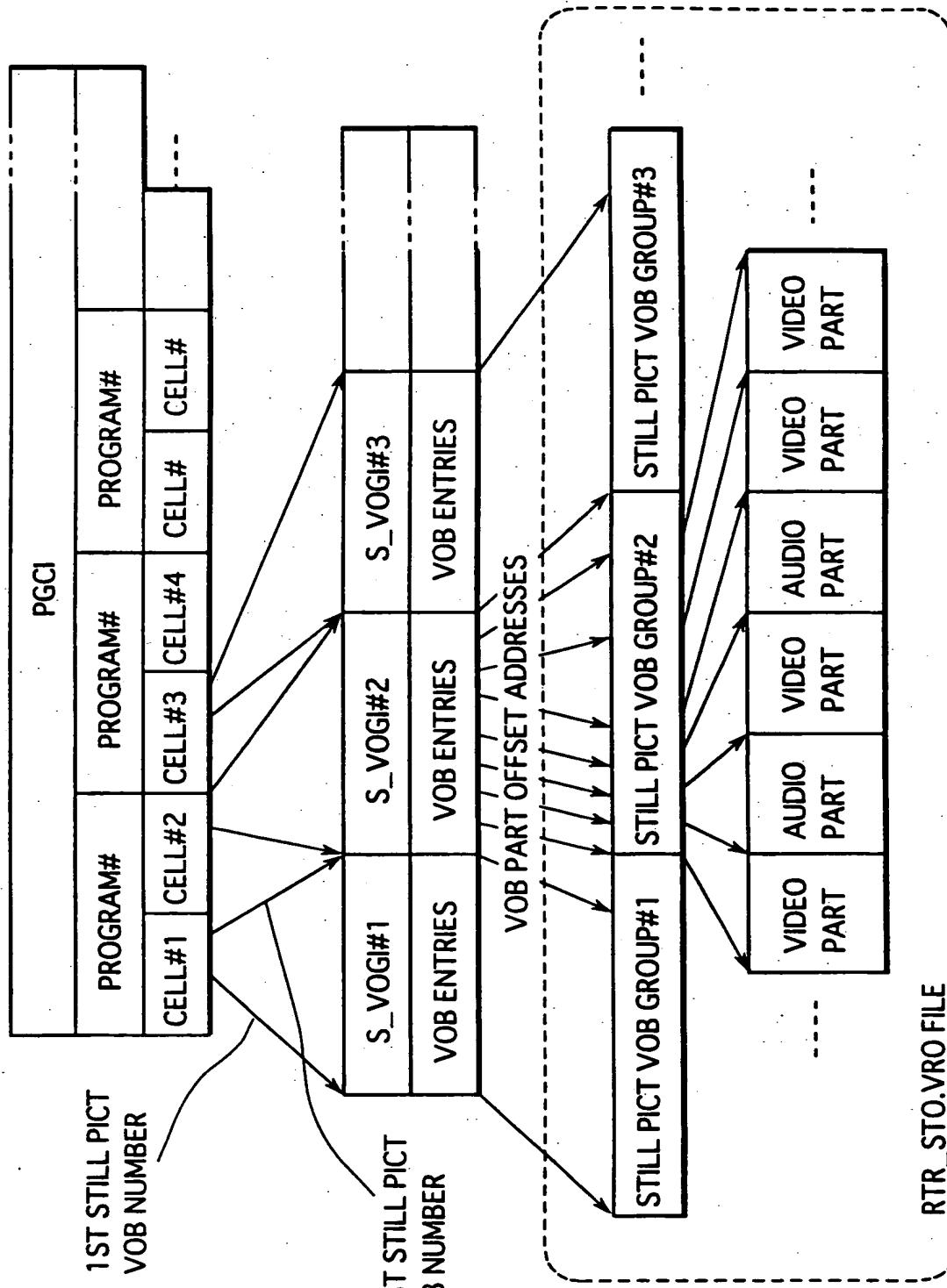


FIG. 35

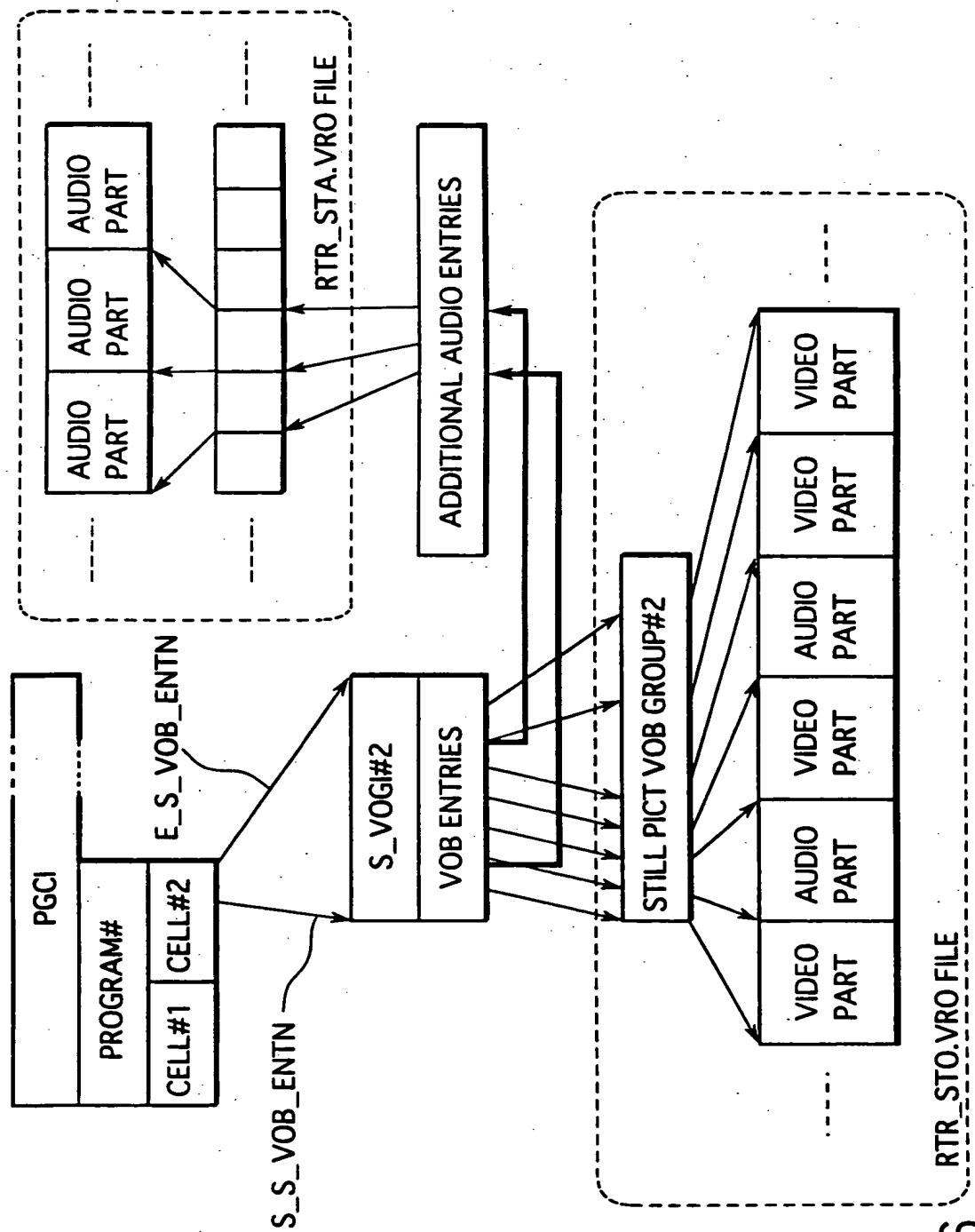


FIG. 36
RTR_STO.VRO FILE

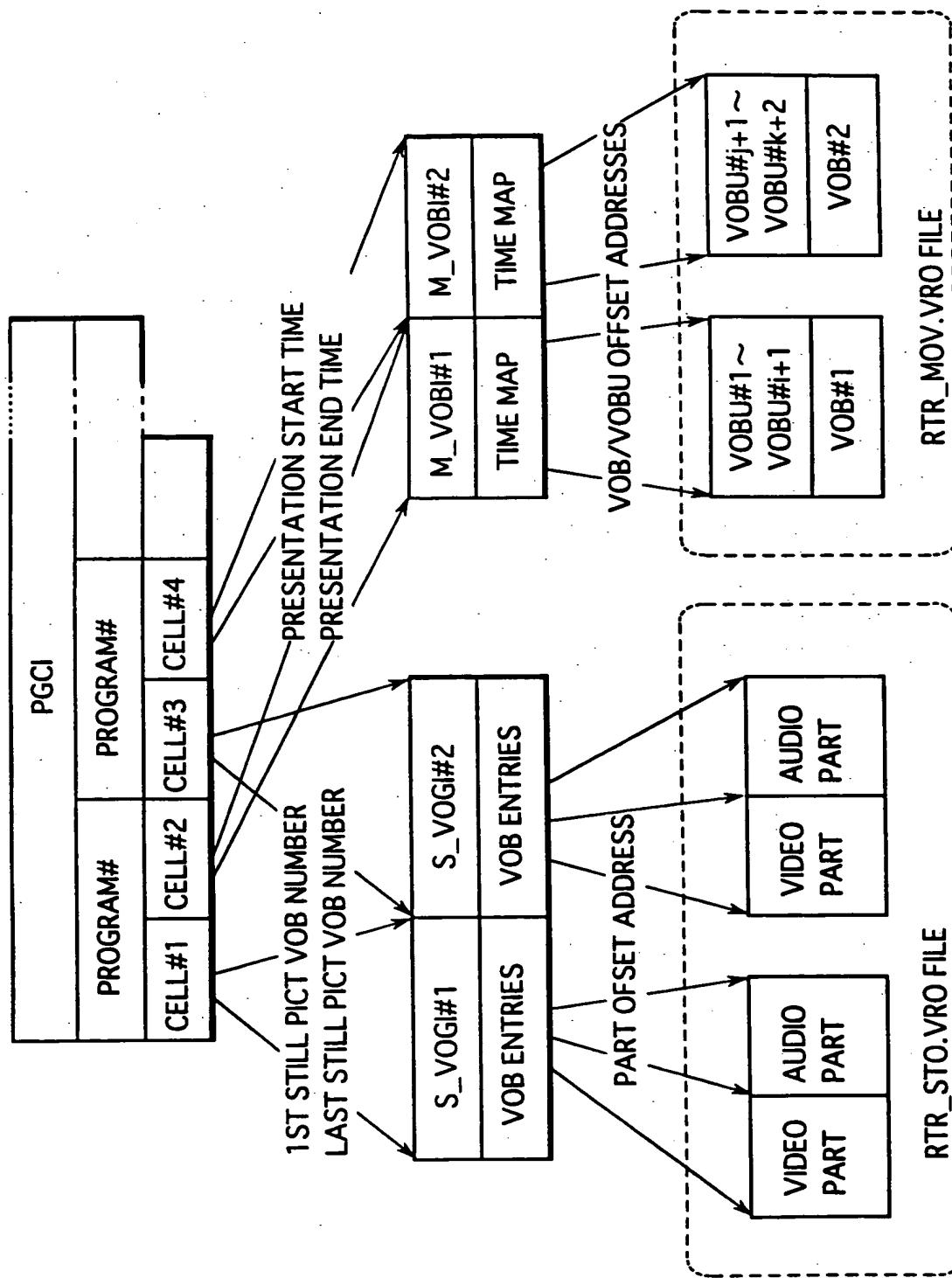


FIG. 37

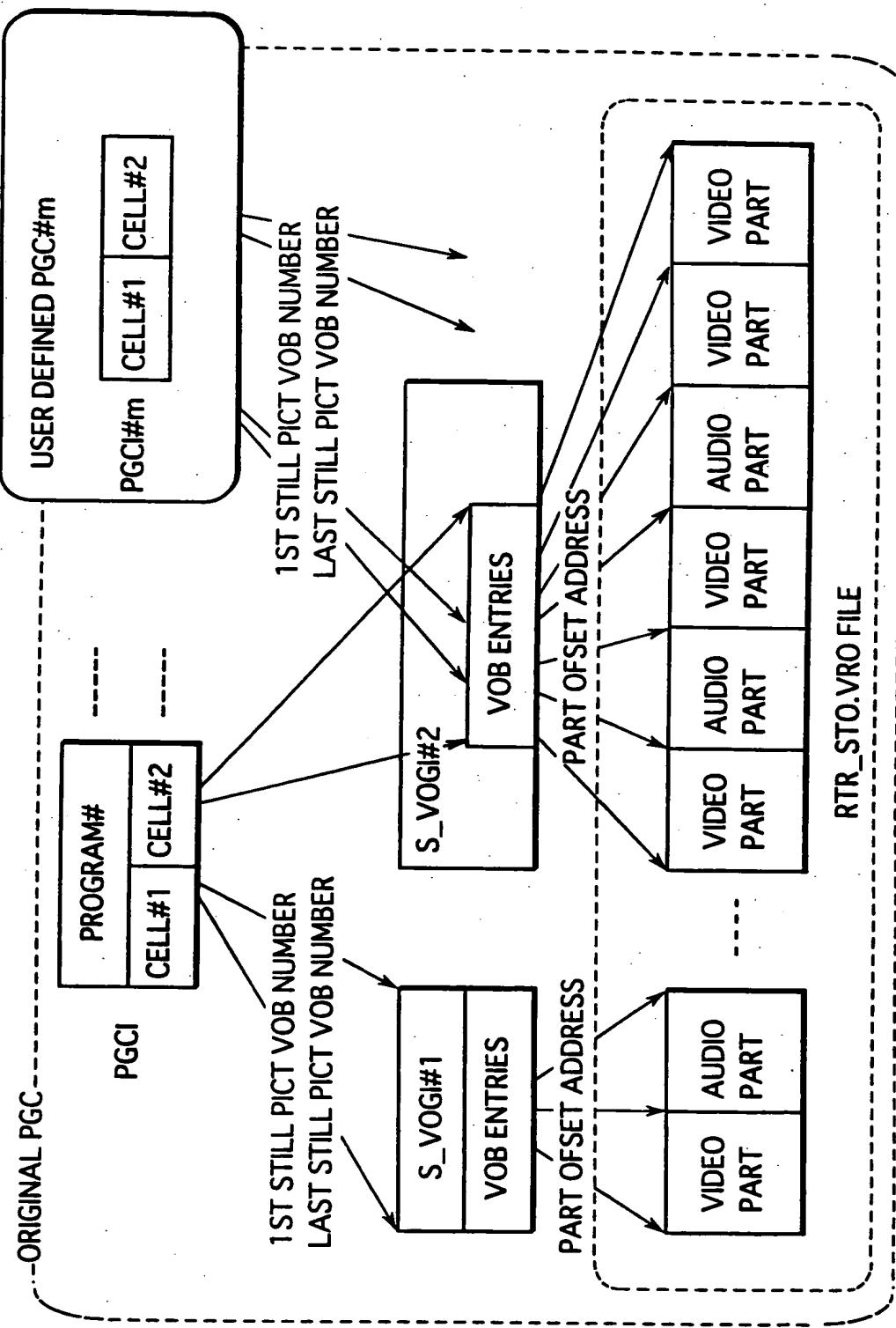


FIG. 38